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THE RUSSIAN BUREAU OF APPLIED BOTANY

TO THE EDITOR OF SCIENCE: It might be of interest to the American scientific workers, engaged along agricultural and botanical lines, to know that Professor N. I. Vavilov, director of the Bureau of Applied Botany of Petrograd, Russia, who recently visited this country, has established a permanent New York office, which represents the Bureau of Applied Botany of the Agricultural Scientific Committee, and of which the undersigned is now in charge.

The object of this office is to secure seeds and other material needed for the work of the Russian Bureau of Applied Botany. We hope to widen and permanently maintain the cordial contact recently established with American institutions and individuals in corresponding lines of research work, as well as with the various seed concerns. The office has already been in existence for three months, and during this short period was in a position to forward nearly 5,000 packages of seeds to Russia for the experimental stations; also, several boxes of agricultural and scientific literature received from various American institutions.

Professor N. I. Vavilov expects to return to Petrograd in February, 1922, after a brief visit to England, Sweden and Germany. Since mail is now being accepted for Russia, all letters to Professor Vavilov may be addressed directly to him at the Bureau of Applied Botany, Morskaja, 44, Petrograd, Russia. Books and parcels should be addressed to Mr. D. N. Borodin, 110 West 40th Street (Room 1603), New York City.

D. N. BORODIN,
Agricultural Explorer.

NEW YORK CITY

MEMORIAL TO WILHELM WUNDT

PROFESSOR PFEIFER, the sculptor, tells me that the sum of Mk. 25,000 is still needed for the execution in marble of his monumental bust of Wundt. Family and friends all approve the bust, which was shown last June in the Aula of the University of Leipzig, and hope that it may be transferred from plaster to the more durable material and placed per-

manently in the Psychological Laboratory. Subscriptions (a thousand marks may now be sent for about six dollars) will be received by Professor Felix Krueger, Psychologisches Institut der Universität (Johanneum), Leipzig, Germany.

E. B. TITCHENER

CORNELL UNIVERSITY,

JANUARY 24, 1922

THE RHODESIAN SKULL¹

Of greatest interest was the discussion of the recently unearthed Rhodesian skull at a recent meeting of the Anatomical Society of Great Britain. I do not know whether the American papers or scientific journals have published an account of it up to this time or not. You have probably had some information, but I thought you might like to have some first-hand, whether it be additional, or merely a repetition of what you have read.

The skull, along with some other human bones and many bones of animals, and some very crude instruments in flint and quartz, was found by the miners of the Broken Hill Mining Company in a cave which they unearthed some 60 feet below the surface in one of the mines in southern Rhodesia. It finally found its way into the British Museum here, and of course its investigation became the happy privilege of Dr. Smith-Woodward, who gave the description and showed the skull and other fragments of bone found with it, to the Anatomical Society.

The skull is in some features the most primitive one that has ever been found; at the same time it has many points of resemblance to (or even identity with) that of modern man.

Fortunately, the face is perfectly preserved. The supra-orbital region is astonishingly gorilla-like, in its enormous size and its unusually great extension laterally; the cranium is almost flat on top, extending backward from the huge supra-orbital ridges, rising only a little above the level of their upper borders. It is very broad in the back, however, so that its total capacity is surprisingly large. At

¹ Extract from a letter written from England to an American scientific man.

least one prominent authority thinks that this man had quite as much gray matter as the average modern man.

Another striking thing to be seen at the back of the skull is the evidence (in the size of the ridges and the contrasting deep impressions), of the tremendous and powerful mass of neck muscles the creature must have had. This is one of the points upon which is based the opinion that the skull is the most primitive yet found.

But to get back to the face! Dr. Smith-Woodward pointed out the fact that the suture of the nasal with the frontal bone is in a straight line rather than at a definite angle as in the apes; he also called attention to the small tubercle of bone in the mid-line of the nasal fossa which he says is distinctly a human trait. The zygomatic process is small. All of the bone of the face below the orbit is relatively undeveloped, but the *length* from the floor of the orbit to the alveolar border of the maxilla is phenomenal, as is also the length from the floor of the nasal cavity to the alveolar border of the maxilla. The palate is beautifully arched, and the teeth form a perfect horseshoe at its border. The wisdom tooth is reduced in size—another point in common with modern man and never found before in a fossil skull.

Unfortunately, the mandible was not found; the closest approach that could be found in the British Museum to the type this man had, was the Heidelberg jaw, but it is a bit too short and too narrow, though the ramus is too broad.

Another thing that has shocked the anthropologists is the unmistakable evidence of dental caries, and even of abscesses at the roots of the teeth. Now I guess we will have to lift the blame for caries off the shoulders of modern civilization. Won't we?

In contrast to the Neanderthal man who is supposed to have walked in a crouching position (because of the rather curved femur and other bits of evidence), this man is believed to have maintained the upright position, because the femur is relatively straight and when fitted to the tibia (which was also found) presents a perfectly good, straight leg.

But it would be altogether foolish for me to

attempt any speculation on what I've seen! Of course, the scientific world here is much excited and many of its members are in danger of letting their imagination run away with them, but Dr. Eliot Smith at least is quoted as leaning to the belief that further study will reveal the fact that "the missing link" in the ancestry of man is represented in this individual—referring, of course to European man. The Neanderthal man would then represent a branch off of the main ancestral tree.

SPECIAL ARTICLES

A PRELIMINARY ATTEMPT TO TRANSMUTE LITHIUM

IF an electron could be introduced into the nucleus of a lithium atom, a nucleus would be obtained which would possess the same resultant charge as a helium nucleus; if two electrons were introduced the nucleus that resulted would have the same charge as a hydrogen nucleus. Both of these products are gases the spectroscopic tests for which are of exceeding delicacy. It consequently does not appear entirely futile to subject lithium to bombardment by a stream of electrons traveling with a high velocity in the hope of causing some of them to penetrate the lithium nucleus. Experiments to this end were undertaken by the writer three years ago in the laboratory of Inorganic Chemistry of the Department of Chemistry, Cornell University. At that time it was hoped to be able to pursue the subject further with more powerful apparatus; that possibility now seems far distant so that it may not be amiss to record briefly the results of the preliminary experiments then made.

The experiment consisted essentially of bombarding either metallic lithium or some salt of lithium with as powerful as possible a stream of electrons, absorbing all of the gases present after the bombardment except hydrogen and helium, compressing this unabsorbed residue into a capillary Plücker tube and examining it spectroscopically. Such a procedure introduced many serious experimental difficulties. In the first place if metallic lithium was used, it is so readily volatile that